

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
UTILITY PATENT APPLICATION

Title:

BODY MEMBER ENCIRCLING JEWELRY WITH EXCHANGEABLE
ORNAMENT SETTING

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Title: Body Member Encircling Jewelry With Exchangeable Ornament Setting
No Related Applications

FIELD OF THE INVENTION

5 The present invention relates generally to a bodily member encircling jewelry that provides for the exchange of an ornament by the owner. Specifically, the present invention relates to a body member encircling jewelry with a replaceable gem setting and means of preventing gem setting loss while in a configuration allowing wearing.

10 BACKGROUND OF THE INVENTION

Numerous patents describe jewelry such as finger rings which provide for the exchange of a decorative element such as a gem, stone, or other object without necessitating the assistance of a jeweler, but which alternately attempts to avert the accidental disengagement and loss of the decorative
15 object. Several novel solutions to this problem have been discovered, however, such heretofore known devices have utilized ineffective or unreliable ornamental complicated or unsightly retaining means providing for exchange of the gem and setting. The simplicity and reliability of the present invention significantly overcomes these disadvantages as shall become apparent to one skilled in the
20 relevant art.

Several prior art patents describe the exchange of a independent, loose ornament not affixed to any setting. Schunk, et al, 4,794,766 describes a ring where an exchangeable stone nests upon a setting affixed upon the periphery of a shank. Stone-clamping arms are eye-hooked at the outward exterior of
25 the annulus, and threaded screws integrate the arms and shank to lock the arms upon facets of the stone. Such an arrangement is flimsy and inelegant, and requires the use of a tool to provide exchange of the decorative element.

Wertheimer, et al, 5,375,434 describes a ring with a stone setting hole through the annulus. A jointed frame overlay pivots to enclose the stone
30 within the hole. In a similar vein, Issacson, 4,374,470 describes a ring where a replaceable cartridge containing and displaying a replaceable gem stone

fixed to a setting inserts into a throughhole in the shank. A hinged door and latch mechanism locks the gem and setting within the insert, and the insert nests snugly into the throughhole in the shank. These inelegant contrivances do not utilize settings fixed to the stone, and each necessarily blocks significant portions of the gem from view in efforts to provide security from loss. Many of the deficiencies of these unset-gem designs would be overcome by fixedly attaching the exchangeable ornament to a setting, and providing for the exchange of one manageably devised setting for another.

Numerous prior art patents describe a ring inserted or nested within another ring. For example, Scola, 4,307,502 describes a composite assembly comprising a wide shank with a circumferential open slot of at least 180 degrees aligned with a cooperative internal groove corresponding to the remainder of the diameter. A separate solitaire slides through the slot and insets within the groove, such that the interior and exterior walls of the annulus are sufficiently flush. At the diametric midpoint of the slot are additional opposing recesses providing for the gem setting of the insert shank, which prevents the insert from pivotally rotating within the slot and internal groove. Problematically, with the exception of the friction fit of the solitaire's gem setting within the corresponding slot, only the wearer's finger holds the pieces together, such that the unworn assembly cannot be sufficiently considered securely fastened. Bergagnini 5,727,399 describes a similar ring insert configuration, where two fixed and separate parallel shanks allow insertion of a third independent shank between, but includes hinged doors to the slot which, when closed, block the slotted opening through which the middle shank was inserted, interfering with the removal of the central shank. Securement of the hinged doors is achieved through the communication of corresponding prongs on the sides of the hinged doors and notches upon the slots walls.

The assemblies of Scola and Bergagnini do not provide independent usefulness for their wider shank component; they are strictly ornamental of the inserted shank. Several known prior art patents describe independent

functionality for the separate shanks. For instance, Doganay, 5,253,490 describes two sufficiently parallel shanks joined at corresponding protrusions by a hinge pin whose axis is skewed to the axis of the shanks, creating an operational clamshell hinge. These joined shanks function as an independent ring when in the closed position, and opened, allows insertion and nesting of a third independent shank so that the placement of any setting on the inserted shank is diametrically opposed to the hinge.

Another solution, involving two separately useful components, is described by Suzuki, 4,080,803, where a solitaire ring is capable of nesting within an otherwise independently useful ring which is itself independently and inherently capable of versatility in ornamental selection. This independently useful ring comprises an ornamental base with central throughhole through which the solitaire's gem is displayed when the two shanks are joined coaxial. Two additional gem settings are hinged inverted within a recess beneath the ornamental base such that either is capable of pivoting into the central hole otherwise reserved for the other ring's solitaire when the units are joined. Half of the base is itself upon a hinge and capable of rotating away from the central throughhole, facilitating the ornamental exchange. With the exception of the wearer's finger, this hinged section of the base provides the locking mechanism, presuming the solitaire gem setting is too large to otherwise exit the central hole.

Lastly, other prior art patents describe an exchangeable gem setting plug and receiving hole. Hanan, 3,913,184, for example, describes a male plug is inserted into a female receptacle, where downward directed, inwardly angled legs engage a recess around the plug. The legs are disengaged from the recess by the depression of a leg wedge, which pushes the legs apart. Tawil, et al 5,456,095 describes a gem setting plug with male projections perpendicular to the axis of the plug extension, which engage corresponding female grooves within the gem setting receiving hole. Dillabaugh, 5,077,989, like Tawil, describes a male gem setting plug with male protrusions perpendicular to the plug. The plug is inserted into a correspondingly shaped

and tapered female component against the bias of a spring within the female, and with a 90 degree twist, the protrusions are engaged with slots beneath the taper. The lock is released with a force countering the spring and a reverse 90 degree twist.

5 Another novel solution involving an exchangeable gem setting plug is provided by Hendricks 5,228,317, which describes a finger ring with coaxial primary and secondary shanks which are rotatably attached with a pin parallel to the coaxes of the shanks. Upon the primary shank is a majority portion of a gem setting receiving hole with more than one width dimension
10 corresponding to a gem setting flange. The minority portion is correspondingly associated with the secondary shank. In a closed position, the shanks are sufficiently coaxial to be worn, and a complete gem setting receiving base holds fast a flanged gem setting plug. The secondary shank
15 pivots out to its open position, exposing the receiving hole.

15 As one knowledgeable in the relevant art shall readily ascertain, the usefulness, reliability, and simplicity of the present invention resolves the difficulties endemic of the prior art in a novel manner.

BRIEF DESCRIPTION OF THE DRAWINGS

A fuller understanding of the foregoing may be had by reference to the accompanying drawings, wherein:

FIG. 1 is a schematic diagram showing body member encircling jewelry
5 with exchangeable ornament setting in an open position;

FIG. 2 is a schematic diagram of an exemplary hinge pin

FIG. 3 is a schematic diagram showing body member encircling jewelry
with exchangeable ornament setting in a closed position and the open position;
and

10 FIG. 4 is a schematic diagram showing body member encircling jewelry
having various exchangeable ornaments.

DETAIL DESCRIPTION OF THE EMBODIMENTS

As shown in the exemplary drawings wherein like reference numerals indicate like or corresponding elements among the figures, an embodiment of a system according to the present invention will now be described in detail. The following description sets forth an example of a body member encircling jewelry with exchangeable ornament setting.

Referring now to FIG. 1, a body member encircling jewelry with exchangeable ornament setting in an open position is shown. The body member encircling jewelry illustrated in FIG. 1 is a ring 100. The ring 100 includes a base 102, a first shank 104, a second shank 106, at least one hinge pin 108, and a receiving hole 110. The exchangeable ornament setting 112 is comprised of a setting plug 114 and a receptacle 116, which can be inserted into the receiving hole 110 in order to create the body member encircling jewelry (e.g., the ring 100) with the exchangeable ornament setting 112.

The first shank 104 and/or the second shank 106 are preferably annular. However, any shape of the first shank 104 and the second shank 106 is within the scope of the invention. For example, the first shank 104 and the second shank 106 may be octagonal, have a flat surface opposite the base 102 side, and so on. Furthermore, the first shank 104 and the second shank 106 may be differing shapes.

The first shank 104 and/or the second shank 106 include a first shank gap 117 and/or a second shank gap 118. The first shank gap 117 and/or the second shank gap 118 may be any width as is suitable with the invention. The first shank gap 117 and the second shank gap 118 receive relative ends of the base 102. Through holes 120 in the first shank 104 and/or the second shank 106 allow the at least one hinge pin 108 to couple the first shank 104 and the second shank 106 to the base 102.

In one embodiment, the ring 100 does not utilize the second shank 106 for securing the exchangeable ornament setting 112 to the base 102. In this embodiment, only the first shank 104 is coupled to the base 102.

Alternatively, one embodiment may include more than one second shank 106. The more than one second shanks 106 may be coupled to the base 102 and/or to multiple bases 102 coupled to one another. In another embodiment, the base 102 includes a plurality of receiving holes 110.

5 The base 102 comprises a rectangular form with a gem setting receiving hole 110 of select size and shape, allowing for insertion and removal of the corresponding exchangeable ornament's 112 setting plug 114. Two parallel through holes 120 for admitting the corresponding hinge pins 108, as discussed herein, are skewed to and offset equidistant from the axis of the
10 gem setting receiving hole 110 to such an extent that the diameter of the gem setting receiving hole 110 and the diameter of the hinge pin 108 through holes 120 partially, but incompletely, intersect. Any diameter of the through holes, the receiving hole 110 and/or the hinge pin 108 is within the scope of the invention.

15 As discussed herein, the first shank 104 and/or the second shank 106 comprise the ring 100. Although FIG. 1 illustrates the ring 100 as the body member encircling jewelry, any body member encircling jewelry is within the scope of the invention. For instance, the body member encircling jewelry may be a necklace, a bracelet, a toe ring, earrings, etc.

20 The first shank gap 117 and/or the second shank gap 118 may create any shape in accordance with the invention. In other words, the first shank gap 117 and/or the second shank gap 118 may create a rectangular shaped gap, a circular shaped gap, a square shaped gap, an oval shaped gap, and so on. The first shank gap 117 and/or the second shank gap 118 are offset at a
25 distance from an axis of the first shank 104 and/or the second shank 106 and matchingly fits opposing sides of the base 102 when parallel faces of the exposed first shank 104 and/or second shank 106 are aligned to cover opposing ends of the corresponding hinge pins 108 through holes 120.

30 As discussed herein, skewed to the axis of the first shank 104 and/or the second shank 106 are through holes 120. The through holes 120 intersect the exposed parallel faces of the first shank 104 and/or the second shank 106 at

the first shank gap 117 and/or the second shank gap 118, respectively. The through holes 120 correspond to through holes 120 in the base 102, allowing for mounting of the base 102 between the first shank gap 117 and the second shank gap 118. The through holes 120 in the base 102 are contiguous with the through holes 120 in the first shank 104 and/or the second shank 106 when the hinge pins 108 are inserted into the through holes 120 in the first shank 104, second shank 106, and the base 102.

Hinge pins 108 of a size and shape corresponding to the through holes 120 provide for joining the first shank 104 and/or the second shank 106 to the base 102. The hinge pins 108 have a sliding fit in the base 102, but are made integral with the first shank 104 and/or the second shank 106 such that they pivot within the base 102 when the first shank 104 and/or the second shank 106 are rotated.

Although the through holes 120 shown in FIG. 1 are substantially parallel, any position of the through holes 120 in the base 102, the first shank 104, and/or the second shank 106 is within the scope of the invention. As discussed herein, the base 102 through holes 120 and the first shank 104 through holes 120 and/or the second shank 106 through holes 120 should be aligned for proper placement of the hinge pins 108 that couple the first shank 104 and/or the second shank 106 to the base 102 and further secure the exchangeable ornament setting 112 to the base 102 via the hinge pins' 108 encroachment of the diameter of the receiving hole 110. Further, the through holes 120 in the base 102 may be any distance from the axis of the receiving hole 110.

In one embodiment, a lever arm secures the first shank 104 to the base 102. For instance, a lever arm might be a partial shank-like form that nests in a corresponding recess of the first shank 104. Alternatively, the lever arm may friction fit or lock, such as by spring lock, into a corresponding space incorporated into the base 102 for receiving, or otherwise accommodating, the lever arm.

Referring now to FIG. 2, a schematic diagram of an exemplary hinge pin 108 is shown. Each hinge pin 108 has a scalloped recess 202, which displaces the portion of the hinge pin 108 that would otherwise interfere with the diameter of the gem setting receiving hole 110 where the setting plug 114 is inserted into the receiving hole 110. Except when the recess 202 is pivoted to the 'open' position, the hinge pin 108 interferes with the diameter of the receiving hole 108.

Properly aligned and integrated with its corresponding first shank 104 and/or second shank 106, each hinge pin 108 interferes with the receiving hole 110 when its correspondingly integral first shank 104 and/or second shank 106 is axially perpendicular to the gem setting receiving hole 110 (i.e., in the closed position). In this closed position, the first shank 104 and/or the second shank 106 are sufficiently coincident or coaxial to allow the wearing of the first shank 104 and/or the second shank 106 on a single body member, such as a finger, toe, etc.. The interference of the hinge pins 108 with the diameter of the receiving hole 110 constitutes the 'closed' position of the ring 100, as discussed herein. When the first shank 104 and the second shank 106 axes are selectively and sufficiently rotated towards parallel with the gem setting receiving hole 110, the recess 202 of each integral hinge pin 108 is rotated coincident to the intersecting diameter of the gem setting receiving hole 110. The corresponding removal of the hinge pins' 108 interference pattern, by swiveling the first shank 104 and/or the second shank 106 outward, constitutes the 'open' position of the ring 100.

Referring now to FIG. 3, the ring 100 is shown in the closed position in accordance with one embodiment of the invention. The exchangeable ornament setting 112 is capable of holding a gem, or any other ornament, fixed in the receptacle 116. As discussed herein, the plug 114 extends in the alternate direction of the receptacle 116 in order to anchor the exchangeable ornament setting 112 to the ring 100 by insertion of the plug 114 into the receiving hole 110. A bottom portion 302 of the plug 114 corresponds to that of the gem setting receiving hole 110 in the base 102, while a recessed portion 304 of the

plug 114 provides a recess corresponding to the interference pattern of the hinge pins 108 when the ring 100 is in the closed position. The bottom portion 302 terminates the recessed portion 302 to provide a flange 306. The flange 306 interferes with the side of the hinge pin 108 opposite the scalloped recess 202, interfering with the flange's 306 exit path. Accordingly, the exchangeable ornament setting 112 is secured within the receiving hole 110 of the ring 100. The recessed portion 304 of the plug 114 fits around the hinge pins 108 toroidally when the ring 100 is in the closed position.

Referring now to FIG. 4, a variety of exemplary exchangeable ornament settings 112 are shown. The receptacle 116 of the exchangeable ornament setting 112 shown in FIG. 1 is a substantially tapered cube. However, the exchangeable ornament setting 112 may be a round setting 402, a pronged setting 404, an octagonal setting (not shown), an oval setting (not shown), and so on. As discussed herein, the ornament in the receptacle 116 of the exchangeable ornament setting 112 may be a gem, such as a diamond, ruby, etc. or any other ornament.

The first shank 104 and/or second shank 106, as well as the base 102, may be made of any material. For instance, the base 102, the first shank 104 and/or second shank 106 may be made of silver, gold, platinum, copper, etc. Further, the base 102, the first shank 104, and/or the second shank 106 may be made of varying materials. For instance, the first shank 104 may be made of gold, while the second shank 106 is made of platinum and the base 102 is made of either gold, platinum, and/or any other suitable material.

In one embodiment of the present invention, the base 102, the first shank 104, and/or the second shank 106 are made of a plastic material. In this embodiment, the exchangeable ornament setting 112 can be faux gems, candy, a pill box, etc. As discussed herein, any material comprising the base 102, the first shank 104, and/or the second shank 106 is within the scope of the invention.

In another embodiment of the present invention, the base 102 is coupled to the hinge pins 108, which are leveraged by elements other than the first

shank 104 and/or the second shank 106. For instance, a necklace may include the base 102 with the capability of changing the exchangeable ornament setting 112, but with the hinge pins 108 turned to release and secure the exchangeable ornament setting 112 by some other mechanism or leverage than the first shank 104 or the second shank 106. In yet another embodiment, the first shank 104 or the second shank 106 is fixed perpendicularly to the base 102.

In yet another embodiment, an adjustment fitting can be inserted into the receiving hole 110 in order to accommodate exchangeable ornament settings 112 with smaller plugs 114. For example, an adjustment fitting may be secured to the receiving hole 110 and base 102 via the hinge pins 108 in some manner. The adjustment fitting may have hinge pins 108 itself for securing a smaller plug 114, or some other mechanism by which to secure smaller plugs 114.

The above description is illustrative and not restrictive. Many variations of the invention will become apparent to those of skill in the art upon review of this disclosure. The scope of the invention should, therefore, be determined not with reference to the above description, but instead should be determined with reference to the appended claims along with their full scope of equivalents.